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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	ATTORNEY DOCKET NO. CONFIRMATION NO.		
10/576,769	04/21/2006	Takeshi Hikawa	DK-US065052	8262		
22919 GLOBAL IP (7590 02/21/2007		EXAMINER			
GLOBAL IP COUNSELORS, LLP 1233 20TH STREET, NW, SUITE 700 WASHINGTON, DC 20036-2680			LEYKIN	I, RITA		
			ART UNIT	PAPER NUMBER		
			2837			
SHORTENED STATUTOR	RY PERIOD OF RESPONSE	MAIL DATE	DELIVER	DELIVERY MODE		
3 MC	ONTHS	02/21/2007	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

		Application	on No.	Applicant(s)				
Office Action Summary		10/576,70	39	HIKAWA ET AL.				
		Examine	,	Art Unit				
		Rita Leyki		2837				
Period fo	The MAILING DATE of this communic or Reply	ation appears on the	cover sheet with the	correspondence ad	idress			
A SH WHIC - Exter after - If NC - Failu Any	ORTENED STATUTORY PERIOD FO CHEVER IS LONGER, FROM THE MAnsions of time may be available under the provisions of SIX (6) MONTHS from the mailing date of this community of period for reply is specified above, the maximum stature to reply within the set or extended period for reply wreply received by the Office later than three months after the patent term adjustment. See 37 CFR 1.704(b).	ALING DATE OF The far transfer of the far tran	HIS COMMUNICATIO ent, however, may a reply be ti ill expire SIX (6) MONTHS from dication to become ABANDONE	N. mely filed n the mailing date of this of ED (35 U.S.C. § 133).				
Status								
1)	Responsive to communication(s) filed	lon .						
2a)□								
3)□								
.—	closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.							
Dispositi	ion of Claims							
4)⊠	4)⊠ Claim(s) <u>1-28</u> is/are pending in the application.							
•	4a) Of the above claim(s) is/are withdrawn from consideration.							
5)	5) Claim(s) is/are allowed.							
6)⊠	S)⊠ Claim(s) <u>1,6,9,10,15,18,20 and 25</u> is/are rejected.							
7)	Claim(s) 2-5,7,8,11-14,16,17,19,21-24	<u>4 and 26-28</u> is/are o	bjected to.					
8)[Claim(s) are subject to restricti	on and/or election r	equirement.	•				
Applicat	ion Papers							
9)□	The specification is objected to by the	Examiner.						
10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.								
,—	Applicant may not request that any object	ion to the drawing(s)	oe held in abeyance. Se	ee 37 CFR 1.85(a).				
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).								
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.								
Priority (under 35 U.S.C. § 119				•			
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).								
a) ☐ All b) ☐ Some * c) ☐ None of:								
	1. Certified copies of the priority documents have been received.							
	2. Certified copies of the priority documents have been received in Application No							
	3. Copies of the certified copies of the priority documents have been received in this National Stage							
	application from the Internation	· ·	7 77					
* See the attached detailed Office action for a list of the certified copies not received.								
				·				
Attachmen								
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 4) Interview Summary (PTO-413) Paper No(s)/Mail Date								
3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 4/21/06.			5) Notice of Informal 6) Other:	ormal Patent Application				

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 2. Claims 1, 9, 10, 18, 20, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ursworth et al. US # 5,510,687.

With respect to claims 1, 9, 10, 18, Ursworth et al. discloses an electric motor controller with temperature protection. Wherein in abstract Ursworth et al. teach indicating the magnitude of the dc electric current flowing through motor winding. A voltage sensor provides value that indicates voltage across motor winding. The resistance of the motor winding is determined from sensed current and voltage values and is used to calculate the temperature of the motor, (see col.11, lines 1-14).

With respect to claims 20, 25 Ursworth teach that in order to calculate temperature during motor operation, a reference value for the stator winding resistance at a known temperature must be determined first. This determination is carried out during a calibration phase of operation, (see col. 7, lines 15-23).

Claim Rejections - 35 USC § 103

- 3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ursworth et al. US # 5,510,687 and Hikawa et al. US # 2005/0247073.

The limitations of the base claims 1 and 10 have been discussed in the rejection above. Ursworth et al. do not teach motor driving a compressor. However, Hikawa et al. teach detection of current and voltage of a three-phase coil brushless dc motor, and prediction of the internal condition of a compressor from detected values.

Hence, it has been obvious to one of ordinary skills in the art, at the time invention was made to control compressor operation, as in Hikawa et al. structure based on control of dc motor as in Ursworth et al. teaching.

The reason is to protect motor from overheating.

Allowable Subject Matter

5. Claims 2-5, 7,8, 11-14, 16, 17, 19, 21-24, 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for the indication of allowable subject matter.

- 7. The prior art made of record in the attached form PTO-892 considered to be pertinent to the submitted application. However, none of the prior art teaches or suggests claimed limitations in combination with:
 - Duty ratios;
 - Fixed coordinate system;
 - Performing calculation of coil resistance at a carrier frequency lower than that for driving the dc motor;
 - Setting the predetermined temperature based on calculated temperature;
 - Setting a time interval until starting of the dc motor based on estimated temperature;
 - Calculating of coil resistance based on voltage drop due to transistors and diodes in the inverter;
 - Detection of central timing of an ON-time or OFF-time;
 - Detection of motor current under a codition that a predetermined voltage is output by using PAM circuitry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (571)272-2066. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571)272-2800 ext. 33. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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R.L.